Interview Summary

Application No.	Applicant(s)
09/103,846	Woychik et al.
Examiner	**Group Art Unit**
Jill D. Martin	1632

All participants (applicant, applicant's representative, PTO personnel):

(1) *Jill D. Martin* (3) _____

(2) *Maha Hamden* (4) _____

Date of Interview *Feb 6, 2001*

Type: ☒ Telephonic ☐ Personal (copy is given to ☐ applicant ☐ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☐ was reached. ☒ was not reached.

Claim(s) discussed: *None*

Identification of prior art discussed:
US Patents 6,015,670 & 6,033,861

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:
The Examiner indicated that new prior art was discovered as a result of an interference search and that prosecution would need to be re-opened on this basis. As such, the Examiner will send a non-final Office action including the identified new prior art under a new ground(s) of rejection. Applicants need not file any response prior to the mailing of this non-final Office action. Allowability withdrawn

Attached - Draft of Examiner's Amendment

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendents which would render the claims allowable is available, a summary thereof must be attached.)

1. ☒ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

2/8/01

JILL D. MARTIN
PATENT EXAMINER
AU 1632

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in telephone interviews with Kamrin T. MacKnight on 11/8/00 and on 1/8/01.

The application has been amended as follows:

Claims 1, 2, 3, 10, 12, 14, 15, 17, 18, 24, 26, 28, 30, 33, 35, and 36 have been **amended** as follows:

1. A method of producing a modification in a gene of interest [contained] in a cell, comprising:

a) providing:

i) an *in vitro* culture of target cells comprising isolated embryonic cells [containing] comprising a gene of interest, said embryonic cells selected from the group consisting of fertilized egg cells, cells of 2-cell embryos, and mouse embryonic stem cells;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said embryonic cells [and at least one modification in one or more additional genes];

b) treating said embryonic cells with said chemical agent under conditions such that a mixture of embryonic cells comprising said gene of interest is produced, said mixture of embryonic cells comprising embryonic cells having an unmodified gene of interest and embryonic cells having a modified gene of interest; and

c) isolating said embryonic cells having a modified gene of interest.

2. The method of Claim 1, further comprising step d) comparing the nucleotide sequence of said gene of interest in said embryonic cells having a modified gene of interest with the nucleotide sequence of said gene of interest in said embryonic cells having an unmodified gene of interest.

3. The method of Claim 1, further comprising step d) placing at least one of said embryonic cells having a modified gene of interest into an environment under conditions so as to generate a non-human animal comprising [said modification in] said modified gene of interest.

10. The method of Claim [9] 1, wherein said [non-human animal is] target cells are isolated from a mammal.

12. The method of Claim [9] 1, wherein said [non-human animal is] target cells are isolated from a zebrafish.

In claim 14, on line 1, the limitation "chemical" has been **inserted** after the phrase "wherein said" and before the term "agent".

15. A method of producing an allelic series of modifications in a gene of interest in a cell, comprising:

a) providing:

i) an *in vitro* culture of target cells comprising isolated embryonic cells [containing] comprising a gene of interest, said embryonic cells selected from the group consisting of fertilized egg cells, cells of 2-cell embryos, and mouse embryonic stem cells;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said embryonic cells;

b) treating said embryonic cells with said chemical agent under conditions such that a mixture of embryonic cells is produced, said mixture of embryonic cells comprising embryonic cells having an unmodified gene of interest, embryonic cells having a first modification in said gene of interest, and embryonic cells having a second modification in said gene of interest; and

c) isolating said embryonic cells having a first modification in said gene of interest and said embryonic cells having a second modification in said gene of interest, thereby producing an allelic series of modifications in said gene of interest in the isolated embryonic cells.

16. The method of Claim 15, further comprising step d) comparing the nucleotide sequence of said gene of interest in said embryonic cells having an unmodified gene of interest with the nucleotide sequence of said gene of interest in embryonic cells selected from the group consisting of said embryonic cells having a first modification in said gene of interest and said embryonic cells having a second modification in said gene of interest.

17. The method of Claim 15, further comprising step d) placing at least one embryonic cell selected from the group consisting of said embryonic cells having a first modification in said gene of interest and said embryonic cells having a second modification in said gene of interest into an environment under conditions so as to generate a non-human animal comprising a modification selected from the group consisting of said first modification in said gene of interest and said second modficiation in said gene of interest.

18. The method of claim 16, further comprising prior to step d) amplifying said gene of interest selected from the group consisting of said gene of interest having said first modification and said gene of interest having said second modification to produce an amplified modified gene of interest

selected from the group consisting of an amplified gene of interest having said first modification and an amplified gene of interest having said second modification.

24. The method of Claim [23] 15, wherein said [non-human animal is] target cells are isolated from a mammal.

26. The method of Claim [23] 15, wherein said [non-human animal is] target cells are isolated from a zebrafish.

In claim 28, on line 1, the limitation "chemical" has been **inserted** after the phrase "wherein said" and before the term "agent".

30. A method of producing a modification in a gene of interest [contained] in a mouse cell, comprising:

a) providing:

i) an *in vitro* culture of isolated mouse embryonic stem cells [containing] comprising a gene of interest;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said mouse embryonic stem cells [and at least one modification in one or more additional genes];

b) treating said mouse embryonic stem cells with said chemical agent under conditions such that a mixture of embryonic stem cells comprising said gene of interest is produced, said mixture of embryonic stem cells comprising embryonic stem cells having an unmodified gene of interest and embryonic stem cells having a modified gene of interest;

c) isolating said embryonic stem cells having a modified gene of interest;

d) comparing the nucleotide sequence of said gene of interest in said embryonic stem cells having a modified gene of interest with the nucleotide sequence of said gene of interest in said embryonic stem cells having an unmodified gene of interest, and

e) manipulating said embryonic stem cells having a modified gene of interest to generate [an organism] a mouse comprising [said modification in] said modified gene of interest, wherein said manipulating comprises:

i) introducing said cells having [said] a modified gene of interest into a mouse embryo to produce a treated embryo;

ii) introducing said treated embryo into a pseudopregnant mouse; and

iii) permitting said pseudopregnant mouse to deliver at least one offspring comprising said modified gene of interest.

33. A method of producing an allelic series of modifications in a gene of interest [contained] in a mouse cell, comprising:

a) providing:

i) an *in vitro* culture of mouse embryonic stem cells;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said mouse embryonic stem cells;

b) treating said mouse embryonic stem cells with said chemical agent under conditions such that a mixture of embryonic stem cells comprising said gene of interest is produced, said mixture of embryonic stem cells comprising embryonic stem cells having an unmodified gene of interest, embryonic stem cells having a first modification in said gene of interest, and embryonic stem cells having a second modification in said gene of interest;

c) isolating said embryonic stem cells having a first modification in said gene of interest and said embryonic stem cells having a second modification in said gene of interest, thereby producing an allelic series of modifications in said gene of interest in the [isolated] mouse embryonic stem cells;

d) comparing the nucleotide sequence of said gene of interest in said embryonic stem cells having an unmodified gene of interest with the nucleotide sequence of said gene of interest in embryonic stem cells selected from the group consisting of said embryonic stem cells having a first modification in said gene of interest and said embryonic stem cells having a second modification in said gene of interest; and

e) manipulating said embryonic stem cells selected from the group consisting of said embryonic stem cells having a first modification in said gene of interest and said embryonic stem cells having a second modification in said gene of interest to generate [an organism] a mouse

comprising a modification selected from the group consisting of said first modification in said gene of interest and said second modification in said gene of interest, wherein said manipulating comprises:

i) introducing said embryonic stem cells having [said] a first modification in said gene of interest and said embryonic stem cells having [said] a second modification in said gene of interest into a mouse embryo to produce a treated embryo;

ii) introducing said treated embryo into a pseudopregnant mouse; and

iii) permitting said pseudopregnant mouse to deliver at least one offspring comprising said first modification in said gene of interest or said second modification in said gene of interest.

35. A method of producing a modification in a gene of interest [contained] in a cell, comprising:

a) providing:

i) an *in vitro* culture of target cells comprising isolated embryonic cells [containing] comprising a gene of interest, said embryonic cells selected from the group consisting of fertilized egg cells, cells of 2-cell embryos, and mouse embryonic stem cells;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said embryonic cells [and at least one modification in one or more additional genes];

b) treating said embryonic cells with said chemical agent under conditions such that a mixture of embryonic cells comprising said gene of interest is produced, said mixture of embryonic cells comprising embryonic cells having an unmodified gene of interest and embryonic cells having a modified gene of interest;

c) isolating said embryonic cells having a modified gene of interest; and

d) placing at least one of said embryonic cells having a modified gene of interest into an environment under conditions so as to generate a non-human animal comprising [said modification in] said modified gene of interest.

36. A method of producing an allelic series of modifications in a gene of interest [contained] in a cell, comprising:

a) providing:

i) an *in vitro* culture of target cells comprising isolated embryonic cells [containing] comprising a gene of interest, said embryonic cells selected from the group consisting of fertilized egg cells, cells of 2-cell embryos, and mouse embryonic stem cells;

ii) a chemical agent capable of producing at least one modification in said gene of interest in at least one of said embryonic cells;

b) treating said embryonic cells with said chemical agent under conditions such that a mixture of embryonic cells comprising said gene of interest is produced, said mixture of embryonic cells comprising embryonic cells having an unmodified gene of interest, embryonic cells

having a first modification in said gene of interest, and embryonic cells having a second modification in said gene of interest;

c) isolating said embryonic cells having a first modification in said gene of interest and said embryonic cells having a second modification in said gene of interest, thereby producing an allelic series of modifications in said gene of interest in the isolated embryonic cells; and

d) placing at least one embryonic cell selected from the group consisting of said embryonic cells having a first modification in said gene of interest and said embryonic cells having a second modification in said gene of interest into an environment under conditions so as to generate a non-human animal comprising a modification selected from the group consisting of said first modification in said gene of interest and said second modification in said gene of interest.

REASONS FOR ALLOWANCE:

The following is an Examiner's statement of Reasons for Allowance:

Applicants' arguments and/or amendments to the claims in the Amendment filed October 10, 2000 (Paper No. 11) are sufficient to overcome the rejections of record. In particular, Applicants' arguments with regard to the standing 102 rejection over Thomas et al. are persuasive because Thomas et al. fails to teach or suggest treating mouse embryonic stem cells with a chemical agent as is required by the claimed invention, rather Thomas et al. utilize X-rays or UV light.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

EXAMINER'S COMMENTS:

It is acknowledged that Applicants have submitted a Certificate under 37 CFR 3.73(b) filed October 10, 2000 (Paper No. 10), however, it is maintained that Applicants' Petition for correction of the inventorship filed April 24, 2000 is deficient because:

An oath or declaration by each actual inventor or inventors listing the entire inventive entity has not been submitted.